AMENDMENTS TO THE CLAIMS:

1. *(Currently Amended)* Method of providing a radio frequency output signal ~~(55)~~, comprising the steps of:

determining an instantaneous size measure of an input signal ~~(35)~~, said size measure being an amplitude or therefrom derivable quantity;

deriving a drive signal ~~(26)~~ from said input signal ~~(35)~~;

providing a bias signal ~~(36)~~, being dependent on said instantaneous size measure; and

amplifying said drive signal ~~(26)~~ using a bias level according to said bias signal ~~(36)~~ into said radio frequency output signal ~~(55)~~;

~~**characterized in that**~~

whereby said bias signal ~~(36)~~ dependency on said instantaneous size measure gives rise to an increased nonlinearity in said amplifying step.

2. *(Currently Amended)* Method according to claim 1, ~~**characterized in that**~~ whereby said bias signal ~~(36)~~ gives an amplification according to one of class C and class B for instantaneous size measures within a first amplitude range, and said bias signal ~~(36)~~ being higher than class B amplification for instantaneous size measures above said first amplitude range.

3. *(Currently Amended)* Method according to claim 2, ~~**characterized in that**~~ whereby said bias signal ~~(36)~~ is controlled to give essentially a class A bias level at maximum amplitude.

4. *(Currently Amended)* Method according to ~~any of the~~ claims 1~~ to 3~~, ~~**characterized in that**~~ whereby said bias signal providing step is controlled for producing a predetermined output characteristics, whereby a bias signal amplitude-averaged over an amplitude interval comprising all amplitudes in an entire amplitude range supported by said amplifying step above a first amplitude is higher than a bias signal amplitude-averaged over said entire amplitude range.

5. *(Currently Amended)* Method according to ~~any of the~~ claims 1~~ to 4~~, ~~**characterized in that**~~ wherein said deriving step comprises the step of modifying said input signal~~ (35)~~.

6. *(Currently Amended)* Method according to claim 5, ~~**characterized in that**~~ wherein said deriving step comprises the step of pre-distorting said input signal ~~(35)~~ dependent ~~(47)~~ on said instantaneous size measure.

7. *(Currently Amended)* Method according to claim 5, ~~**characterized in that**~~ wherein said deriving step comprises the step of modifying said input signal ~~(35)~~ by a feedback arrangement.

8. *(Currently Amended)* Method according to ~~any of the~~ claims 1~~ to 7~~, ~~**characterized in that**~~ wherein said bias signal ~~(36)~~ is controlled to, for all amplitudes within a first amplitude range~~ (11)~~, increase with increasing amplitude.

9. *(Currently Amended)* Method according to ~~any of the~~ claims 1~~ to 8~~, ~~**characterized in that**~~ wherein said bias signal ~~(36)~~ is controlled to be, for all amplitudes within a second

amplitude range~~(12)~~, lower than said bias signal amplitude-averaged over said entire amplitude range.

10. *(Currently Amended)* Method according to claim 8~~or 9~~, **~~characterized in that~~** wherein said first amplitude range ~~(11)~~ comprises maximum amplitude.

11. *(Currently Amended)* Method according to claim 6, **~~characterized by~~** comprising the further steps of:

selecting a pre-distortion function having a predetermined bandwidth; and

adapting bias signal ~~(36)~~ according to said pre-distortion function.

12. *(Currently Amended)* Method according to claims 11, **~~characterized in that~~** wherein said pre-distortion function contains predominantly low-order components.

13. *(Currently Amended)* Method according to ~~any of the~~ claims 6~~, 11 or 12~~, **~~characterized by~~** comprising the further steps of:

selecting said bias signal ~~(36)~~ according to predetermined relations; and

adapting said pre-distortion function according to said bias signal~~(36)~~.

14. *(Currently Amended)* Method according to ~~any of the~~ claims 1~~to 13~~, **~~characterized in that~~** wherein said output characteristics, at least for a third amplitude range~~(13)~~, is linear.

15. *(Currently Amended)* Method according to claim 14, ~~**characterized in that**~~ wherein said output characteristics is substantially linear over the entire amplitude range.

16. *(Currently Amended)* Method according to ~~any of the~~ claims 1 ~~to 13~~, ~~**characterized in that**~~ wherein said output characteristics comprises a substantially zero output signal within a fourth amplitude range ~~(14)~~.

17. *(Currently Amended)* Method according to ~~any of the~~ claims 1 ~~to 16~~, ~~**characterized by**~~ comprising the further steps of:

determining a feedback signal ~~(46)~~ of said radio frequency output signal ~~(55)~~; and

adapting said drive signal ~~(26)~~ and/or said bias signal ~~(36)~~ according to said feedback signal ~~(46)~~.

18. *(Currently Amended)* Method according to claim 6, ~~**characterized by**~~ comprising the further steps of:

causing said pre-distorting and bias signal providing steps to be simultaneous at the input of said amplification.

19. *(Currently Amended)* Method according to claim 18, ~~**characterized in that**~~ wherein said causing step in turn comprises at least one of the steps of:

inverse filtering of said drive signal ~~(26)~~ with respect to a first signal path ~~(51)~~ to an amplifying element ~~(50)~~;

delay compensation of said drive signal ~~(26)~~ with respect to said first signal path ~~(51)~~ to an amplifying element ~~(50)~~;

inverse filtering of said bias signal ~~(36)~~ with respect to a second signal path ~~(52)~~ to said amplifying element ~~(50)~~; and

delay compensation of said bias signal ~~(36)~~ with respect to said second signal path ~~(52)~~ to said amplifying element ~~(50)~~.

20. *(Currently Amended)* Method according to ~~any of the~~ claims 1 ~~to 19~~, ~~**characterized by**~~ comprising the further step of:

compensating current saturation at high amplitude end.

21. *(Currently Amended)* Use of a method according to ~~any of the~~ claims 1 ~~to 20~~ in a radio frequency amplifier arrangement of a type selected from the list of:

Doherty amplifier arrangement ~~(60)~~;

Chireix amplifier arrangement; and

amplifier arrangements using envelope and restoration enhancement techniques.

22. *(Currently Amended)* Radio frequency power amplifier ~~(2; 62, 64)~~, comprising:

input signal terminal ~~(19)~~;

input detector ~~(40)~~ arranged to determine an instantaneous size measure of a signal ~~(35)~~ on said input signal terminal ~~(19)~~, said size measure being an amplitude or therefrom derivable quantity;

drive signal deriving means ~~(20)~~ connected to said input signal terminal ~~(19)~~, providing a drive signal ~~(26)~~;

bias signal generator ~~(30)~~ providing a bias signal ~~(36)~~, said bias signal generator ~~(30)~~ being connected to said input detector ~~(40)~~ and being controlled dependent ~~(47)~~ on said instantaneous size measure; and

amplifying element ~~(50)~~, connected to said drive signal deriving means ~~(20)~~ and said bias signal generator ~~(30)~~;

~~**characterized in that**~~

whereby said bias signal generator ~~(36)~~ being controlled to gives rise to an increased nonlinearity in said amplifying element ~~(50)~~.

23. *(Currently Amended)* Radio frequency power amplifier according to claim 22, ~~**characterized in that**~~ wherein said bias signal generator ~~(30)~~ is arranged to give an amplification in said amplifying element ~~(50)~~ according to one of class C and class B for instantaneous size measures within a first amplitude range, and to give a bias signal ~~(36)~~ being higher than class B amplification for instantaneous size measures above said first amplitude range.

24. *(Currently Amended)* Radio frequency power amplifier according to claim 22 ~~or 23~~, ~~**characterized in that**~~ wherein said bias signal generator ~~(30)~~ is arranged to give a bias signal amplitude-averaged over an amplitude interval comprising all amplitudes in an entire amplitude range supported by said amplifying element ~~(50)~~ above a first amplitude is higher than a bias signal amplitude-averaged over said entire amplitude range.

25. *(Currently Amended)* Radio frequency power amplifier according to ~~any of the~~ claims 22 ~~to 24~~, ~~**characterized in that**~~ wherein said drive signal deriving means comprises pre-distorting means ~~(20)~~ connected to said input detector ~~(40)~~, being controlled dependent ~~(47)~~ on said instantaneous size measure.

26. *(Currently Amended)* Radio frequency power amplifier according to ~~any of the~~ claims 22 ~~to 25~~, ~~**characterized in that**~~ wherein said bias signal generator ~~(30)~~ in turn comprises means giving a bias signal ~~(36)~~, which for all amplitudes within a first amplitude range ~~(11)~~, increase with increasing amplitude.

27. *(Currently Amended)* Radio frequency power amplifier according to ~~any of the~~ claims 22 ~~to 26~~, ~~**characterized in that**~~ wherein said bias signal generator ~~(30)~~ in turn comprises means giving a bias signal ~~(36)~~, which for all amplitudes within a second amplitude range ~~(12)~~, is lower than an amplitude-averaged bias signal ~~(16)~~.

28. *(Currently Amended)* Radio frequency power amplifier according to claim 25, ~~**characterized by**~~ further comprising:

feed-back arrangement ~~(48)~~, in turn comprising a feedback sensor ~~(41)~~ monitoring said output of said amplifier element ~~(50)~~ and adaptation means ~~(44)~~ connected said bias signal generator ~~(30)~~ and said pre-distortion means ~~(20)~~ for providing said bias signal generator ~~(30)~~ and said pre-distortion means ~~(20)~~ with a feedback signal ~~(53, 54)~~;

said bias signal generator ~~(30)~~ and said pre-distortion means ~~(20)~~ being arranged to adapt their actions according to said feedback signal ~~(53, 54)~~.

29. *(Currently Amended)* Radio frequency power amplifier according to ~~any of the~~ claims 22 ~~to 28~~, ~~**characterized by**~~ further comprising:

simultaneousness-causing means ~~(21, 31)~~ for causing said drive signal ~~(26)~~ and bias signal ~~(36)~~ to be simultaneous at in input of said amplifying element ~~(50)~~.

30. *(Currently Amended)* Radio frequency power amplifier according to claim 29, ~~**characterized in that**~~ wherein said coincidence causing means in turn comprises at least one of:

inverse filter ~~(21)~~ connected between said pre-distortion means ~~(20)~~ and said amplifying element ~~(50)~~, for compensating for a first signal path ~~(51)~~ to said amplifying element ~~(50)~~; and

inverse filter ~~(31)~~ connected between said bias signal generator ~~(30)~~ and said amplifying element ~~(50)~~, for compensating for a second signal path ~~(52)~~ to said amplifying element ~~(50)~~.

31. *(Currently Amended)* Composite radio frequency power amplifier ~~(60)~~, ~~**characterized by**~~ comprising at least one radio frequency power amplifier ~~(2; 62, 64)~~ according to ~~any of the~~ claims 22 ~~to 30~~ as a sub-amplifier.

32. *(Currently Amended)* Composite radio frequency power amplifier according to claim 31, ~~**characterized in that**~~ wherein said composite radio frequency power amplifier is selected from the list of:

Doherty amplifier arrangement ~~(60)~~;

Chireix amplifier arrangement; and

amplifier arrangements using envelope elimination and restoration techniques.

33. *(Currently Amended)* Transmitter, having a radio frequency power amplifier ~~(2; 62, 64)~~, said radio frequency power amplifier ~~(2; 62, 64)~~ comprising:

input signal terminal ~~(19)~~;

input detector ~~(40)~~ arranged to determine an instantaneous size measure of a signal ~~(35)~~ on said input signal terminal ~~(19)~~, said size measure being an amplitude or therefrom derivable quantity;

drive signal deriving means ~~(20)~~ connected to said input signal terminal ~~(19)~~, providing a drive signal ~~(26)~~;

bias signal generator ~~(30)~~ providing a bias signal ~~(36)~~, said bias signal generator ~~(30)~~ being connected to said input detector ~~(40)~~ and being controlled dependent ~~(47)~~ on said instantaneous size measure; and

amplifying element ~~(50)~~, connected to said drive signal deriving means ~~(20)~~ and said bias signal generator ~~(30)~~;

~~**characterized in that**~~

whereby said bias signal generator ~~(36)~~ being controlled to gives rise to an increased nonlinearity in said amplifying element ~~(50)~~.

34. *(Currently Amended)* Transmitter according to claim 33, ~~**characterized in that**~~ wherein said bias signal generator ~~(30)~~ is arranged to give an amplification in said amplifying element ~~(50)~~ according to one of class C and class B for instantaneous size measures within a

first amplitude range, and to give a bias signal ~~(36)~~ being higher than class B amplification for instantaneous size measures above said first amplitude range.

35. *(Currently Amended)* Transmitter according to claim 33 ~~or 34~~, ~~**characterized in that**~~ wherein said bias signal amplitude-averaged over an amplitude interval comprising all amplitudes in an entire amplitude range supported by said amplifying element ~~(50)~~ above a first amplitude is higher than a bias signal amplitude-averaged over said entire amplitude range.

36. *(Currently Amended)* Transmitter according to ~~any of the~~ claims 33 ~~to 35~~, ~~**characterized in that**~~ wherein said drive signal deriving means comprises pre-distorting means ~~(20)~~ connected to said input detector ~~(40)~~, being controlled dependent ~~(47)~~ on said instantaneous size measure.

37. *(Currently Amended)* Transmitter according to ~~any of the~~ claims 33 ~~to 36~~, ~~**characterized in that**~~ wherein said bias signal generator ~~(30)~~ in turn comprises means giving a bias signal ~~(36)~~, which for all amplitudes within a first amplitude range ~~(11)~~, increase with increasing amplitude.

38. *(Currently Amended)* Transmitter according to ~~any of the~~ claims 33 ~~to 37~~, ~~**characterized in that**~~ wherein said bias signal generator ~~(30)~~ in turn comprises means giving a bias signal ~~(36)~~, which for all amplitudes within a second amplitude range ~~(12)~~, is lower than an amplitude-averaged bias signal ~~(16)~~.

39. *(Currently Amended)* Transmitter according to claim 38, ~~**characterized in that**~~ wherein said second amplitude range ~~(12)~~ covers at least half the amplitude distribution ~~(15)~~.

40. *(Currently Amended)* Transmitter according to claim 38 ~~or 39~~, ~~**characterized in that**~~ wherein said pre-distortion means ~~(20)~~ comprises means for making said drive signal ~~(26)~~ larger than said input signal ~~(35)~~ at least in said second amplitude range ~~(12)~~.

41. *(Currently Amended)* Wireless communication system ~~(1)~~, having a radio frequency power amplifier ~~(2; 62,64)~~, said radio frequency power amplifier ~~(2; 62, 64)~~ comprising:

input signal terminal ~~(19)~~;

input detector ~~(40)~~ arranged to determine an instantaneous size measure of a signal ~~(35)~~ on said input signal terminal ~~(19)~~, said size measure being an amplitude or therefrom derivable quantity;

drive signal deriving means ~~(20)~~ connected to said input signal terminal ~~(19)~~, providing a drive signal ~~(26)~~;

bias signal generator ~~(30)~~ providing a bias signal ~~(36)~~, said bias signal generator ~~(30)~~ being connected to said input detector ~~(40)~~ and being controlled dependent ~~(47)~~ on said instantaneous size measure; and

amplifying element ~~(50)~~, connected to said drive signal deriving means ~~(20)~~ and said bias signal generator ~~(30)~~;

~~**characterized in that**~~

whereby said bias signal generator ~~(36)~~ being controlled to gives rise to an increased nonlinearity in said amplifying element ~~(50)~~.

42. *(Currently Amended)* Base station ~~(9)~~ of a wireless communication system ~~(1)~~, having a radio frequency power amplifier ~~(2; 62,64)~~, said radio frequency power amplifier ~~(2; 62, 64)~~ comprising:

input signal terminal ~~(19)~~;

input detector ~~(40)~~ arranged to determine an instantaneous size measure of a signal ~~(35)~~ on said input signal terminal ~~(19)~~, said size measure being an amplitude or therefrom derivable quantity;

drive signal deriving means ~~(20)~~ connected to said input signal terminal ~~(19)~~, providing a drive signal ~~(26)~~;

bias signal generator ~~(30)~~ providing a bias signal ~~(36)~~, said bias signal generator ~~(30)~~ being connected to said input detector ~~(40)~~ and being controlled dependent ~~(47)~~ on said instantaneous size measure; and

amplifying element ~~(50)~~, connected to said drive signal deriving means ~~(20)~~ and said bias signal generator ~~(30)~~;

~~**characterized in that**~~

whereby said bias signal generator ~~(36)~~ being controlled to gives rise to an increased nonlinearity in said amplifying element ~~(50)~~.

43. *(Currently Amended)* Mobile unit ~~(8)~~ of a wireless communication system ~~(1)~~, having a radio frequency power amplifier ~~(2; 62,64)~~, said radio frequency power amplifier ~~(2; 62, 64)~~ comprising:

input signal terminal ~~(19)~~;

input detector ~~(40)~~ arranged to determine an instantaneous size measure of a signal ~~(35)~~ on said input signal terminal ~~(19)~~, said size measure being an amplitude or therefrom derivable quantity;

drive signal deriving means ~~(20)~~ connected to said input signal terminal ~~(19)~~, providing a drive signal ~~(26)~~;

bias signal generator ~~(30)~~ providing a bias signal ~~(36)~~, said bias signal generator ~~(30)~~ being connected to said input detector ~~(40)~~ and being controlled dependent ~~(47)~~ on said instantaneous size measure; and

amplifying element ~~(50)~~, connected to said drive signal deriving means ~~(20)~~ and said bias signal generator ~~(30)~~;

~~**characterized in that**~~

whereby said bias signal generator ~~(36)~~ being controlled to gives rise to an increased nonlinearity in said amplifying element ~~(50)~~.